

BARRIERS IN DEVELOPING NATIONAL MITIGATION STRATEGIES AND ACTIONS IN DEVELOPING COUNTRIES:

LESSONS LEARNED FROM THE UNDP'S LOW EMISSION
CAPACITY BUILDING PROGRAMME

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Introduction

This study has been prepared for and funded by the Low Emission Capacity Building (LECB) Programme. Launched in 2011 as part of the United Nations Development Programme (UNDP), the LECB Programme currently supports 25 countries. It helps these developing nations build the public- and private-sector capacities needed to scale up country-driven climate-change mitigation actions, mainly by providing focus in five areas: GHG Inventory Systems; Low Emission Development Strategies (LEDS); Nationally Appropriate Mitigation Actions (NAMAs); Measuring, Reporting and Verification (MRV) systems; and strategies for including the private sector. The LECB Programme is made possible through generous contributions from the European Commission, the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, and the Australian Government. More information can be found at www.lowemissiondevelopment.org

Box 1 below provides some definitions of the LEDS and NAMA concepts.

BOX 1: DEFINITION OF LEDS AND NAMAS

The concepts of LEDS and NAMAs are very closely linked. A LEDS is an overall vision and national strategy for transitioning to low-emission development. It is aligned with the sustainable development goals and national development priorities determined by the host country. The LEDS concept was first formally incorporated into the United Nations Framework Convention on Climate Change (UNFCCC) decisions as part of the Cancun Agreement at COP 16 in 2010 (FCCC/CP/2010/7/Add.1). It was reinforced at COP 17 in Doha (FCCC/CP/2012/8/Add.1). As part of an approach to meeting overall emissions-reduction objectives, developing countries were encouraged to make LEDS part of their overall policies for sustainable development.

NAMA is a term coined during international climate negotiations in 2007. It refers to voluntary actions taken by developing countries to reduce greenhouse gas (GHG) emissions to levels below those of “business as usual” (BAU). Such actions might be undertaken by a developing country on its own or with international support. NAMAs might focus on capacity building, financing or technology. For a detailed discussion of NAMAs, see Sharma, S., Desgain, D., 2013.

The key distinction between a LEDS and NAMAs is that the former establishes an overarching vision and framework for the national transition to a lower-emission economy, while the latter are often focused on specific measures within key sectors. While the two concepts are closely linked, a LEDS is not a prerequisite for NAMAs. NAMAs can occur within the context of general development plans without having a LEDS in place (Averchenkova, A. 2010). In cases in which LEDS and NAMAs are being developed simultaneously, NAMAs are seen as concrete actions under the overall strategic umbrella of the LEDS.

NAMAs can take various forms, ranging from policy or regulatory interventions at the national or sectorial level (e.g., emission-trading schemes, feed-in-tariffs) to project-based NAMAs targeting specific investments or technology (e.g., development of a waste treatment facility). For a more detailed discussion on the key features of NAMAs, their practical design steps and their relationship to LEDS, see UNDP, 2013a.

To date, a number of global studies have looked at barriers that typically hinder transitions to low-carbon economies. While these have focused on technological and financial barriers, most developing countries also face significant political and institutional challenges to the introduction of low-carbon alternatives into their national development planning. Such barriers are particularly critical in the early stages of formulating policy, attaining political support and garnering investment capital.

The objective of this study is to identify barriers to the design and implementation of LEDS and NAMAs in countries participating in the LECB Programme. It also aims to provide some guidance on overcoming these barriers, based on experience gained to date. Likely target audiences include climate-change mitigation practitioners, possible financing organizations and international institutions working on capacity building and the design and implementation of mitigation programmes in developing countries. The study may also be of interest to climate-change negotiators.

The study combines desk reviews of existing publications on this type of experience within specific countries and international institutions working with the LECB Programme. It is based on an initial review, followed by a set of semi-structured interviews with national experts from Chile, Vietnam, Mexico, Lebanon and Ghana, LECB staff, representatives from the private sector and several international NAMA practitioners working in LECB countries. In total, twenty interviews were conducted, including:

- four interviews with international NAMA practitioners running LEDS and NAMA capacity-building projects;
- ten interviews with national government representatives from Chile, Ghana, Vietnam, Mexico and Lebanon; and
- six interviews and a number of informal discussions with private-sector representatives and business associations operating both internationally and locally within the study's focus countries.

Information from the interviews was collected with the assurance of anonymity, in order to ensure candid responses. Therefore, the study does not directly cite participants, and the results presented are based on a synthesis of the points made.

The desk review and the interviews have been complemented here by a survey of barriers, the means of overcoming them and experiences had in the area of engaging the private sector. This survey was disseminated to policy-makers and national experts in all countries participating in the LECB Programme. In all, 31 responses to the survey have been received. These cover 17 countries: Bhutan, Chile, Costa Rica, Democratic Republic of Congo, Ecuador, Egypt, Ghana, Kenya, Lebanon, Malaysia, Mexico, Moldova, Peru, Tanzania, Uganda, Vietnam and Zambia.

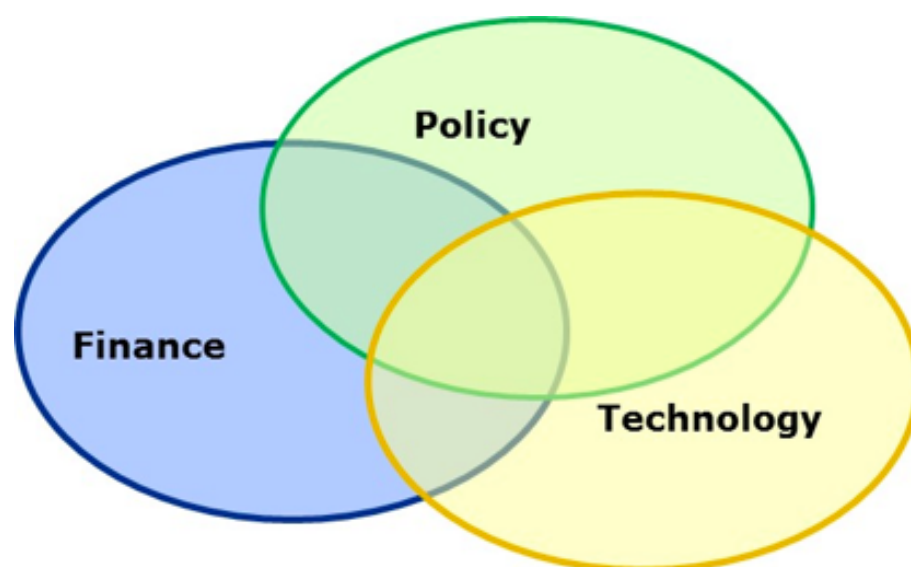
Preliminary results of this study were presented and feedback received at the global LECB workshop in Vietnam in September 2013 and at a side event at the COP 19 in Warsaw in November 2013.

Through analyses like these of the barriers faced at the various stages of LEDS and/or NAMA development, the LECB Programme seeks to help countries identify desirable, effective mitigation activities and to assist them in coming up with practical, concrete approaches to their implementation. It is hoped that this analysis will serve as valuable information to national teams and the wider policy-making community, helping them attract domestic support for the implementation of mitigation actions. This study provides practical guidance on the challenges and solutions of which countries should be aware as they continue on their journey to low-emission development.

1 Key Steps on the Road to a Low-carbon Economy

The transition to low-emission development rests on three essential pillars (See Figure 1). First, low-carbon technology must be available for deployment within the country, and local people must have the necessary know-how for its deployment. If the latter is not true, then the needed skills and knowledge must initially come from abroad. This applies not only to a particular low-carbon process or product, but also to the entire related infrastructure and supply chain. As an example, a switch to a low-carbon mode of transportation such as electric cars requires not only the availability of the cars themselves, but also that of charging stations, repair facilities, replacement batteries, and so on. Second, the transition requires sufficient financing for deployment of low-carbon technology. Currently, a large part of such technology is not competitive in terms of the balance between risk and return on investment, and is therefore unattractive to investors (UNDP, 2013b). Many developing countries also face another common set of barriers to obtaining financing for new technology, and these have to do with the country's overall level of political and economic risk, both internationally and domestically. Third, in order to bring the factors of low-carbon technology and financing together, thereby improving the competitiveness of low-emission investment options, policy interventions are needed.

FIGURE 1: THE THREE PILLARS SUPPORTING THE TRANSITION TO LOW-CARBON DEVELOPMENT



BRINGING TECHNOLOGY, FINANCING AND POLICY TOGETHER

The primary objective of a LEDS and/or NAMAs—and a primary challenge as well—is to find the right balance between these pillars of technology, financing and policy. Such a balance will enable a market shift to low-carbon options.

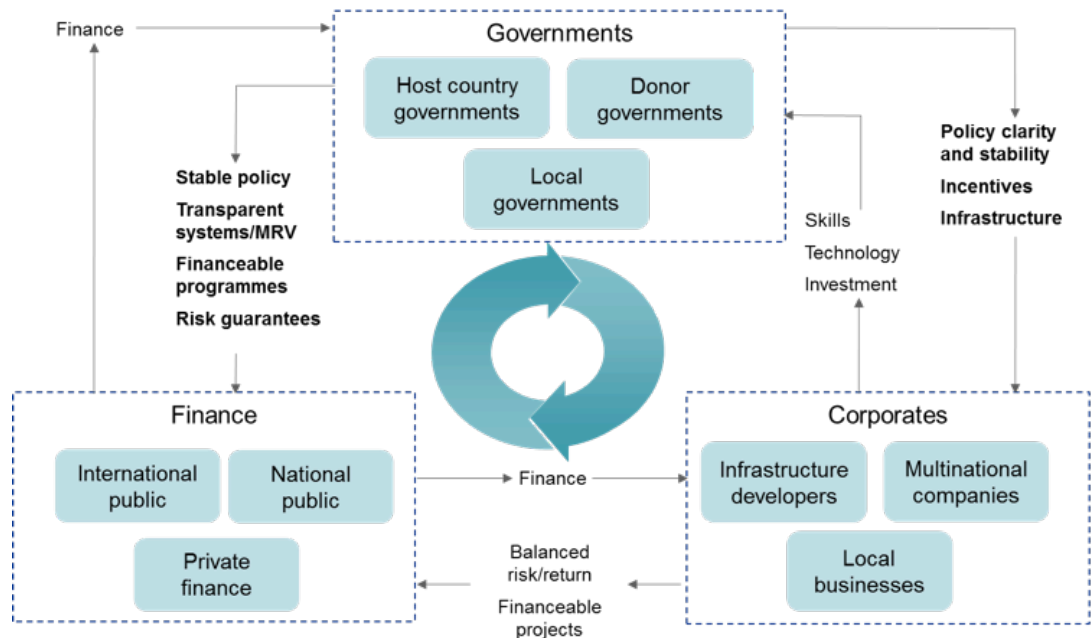
Achieving this ambitious goal requires mobilisation of three broad groups of stakeholders: project developers, financiers and government. Each of these groups of stakeholders has a distinct role and different incentives. The success of a LEDS and/or NAMAs in increasing low-carbon investment depends on a nation’s ability to build partnerships among these stakeholders and improve the effectiveness of interaction among them.

The first critical group of stakeholders includes those in the private sector who develop and implement low-carbon projects related to either products or processes. These can be international or local companies operating in a particular GHG-emitting sector, such as energy or mining, as well as infrastructure providers and producers farther down in the supply chain. From this group of stakeholders comes low-carbon technology as well as the skills necessary to provide a low-carbon product or process worthy of investment.

If this is to happen, this first group requires financing from the second group, which includes international financial institutions, national public funders and national and international private-sector investors. The latter could include both equity and debt investors. Any investor requires that a project has a balanced risk-reward profile. Investors want to be assured that the expected returns on the investment are in line with their perceived risk. The higher a project’s perceived risk, the higher the investors’ expected returns. Low-carbon investment options, particularly in developing countries, typically present risk-reward profiles that are not competitive with traditional, higher-carbon alternatives and as we said earlier, this is what makes attracting financing in this area particularly challenging.

This is where the third group comes in. Government players are responsible for developing supportive policy frameworks or enacting policy interventions. These might include entities within the national government, local or regional government or donor governments. In many developing countries around the world, policy interventions are currently being designed with LEDS and/or NAMAs in mind. Their goals are to identify the potential for GHG emission reduction within key sectors, determine the technological and financial barriers to the most promising alternatives for such reduction, and finally to design the policies and regulations and establish incentives and other measures needed for overcoming these barriers. Figure 2 provides a schematic that shows the relationships between these stakeholder groups.

FIGURE 2: BUILDING PARTNERSHIPS FOR THE TRANSITION TO LOW-CARBON DEVELOPMENT



Source: KPMG, 2011

ENABLING LOW-CARBON INVESTMENT

A number of recent publications have provided in-depth assessments of the barriers to low-carbon investment in developing nations. The relevance of these barriers varies, depending on the sector and technology in question, as well as on each country's overall economic and political environment. The Climate and Development Knowledge Network's (CDKN) guide to financial barriers for climate investment makes a distinction between the following:

- barriers related to issues of the overall competitiveness of low-carbon options in economic situations in which externalities are not addressed and carbon pricing is absent;
- barriers related to the lack of experience with new and unproven technology;
- a lack of information leading to behavioural failures; and
- barriers related to the overall financial, regulatory and political climate in the country and the size of the market in question (CDKN, 2013).

In most cases, government intervention is required to address market failures and other barriers mentioned above. In the sections below, we briefly discuss barriers to low-carbon investment as well as mechanisms that are available to address them within the context of LEDS and NAMAs.

The main objective of such mechanisms is to create a balance between investment risk and reward, so that low-carbon technology can compete locally with higher-carbon alternatives and thus become more attractive to the private sector. The choice of particular mechanisms and policy interventions will depend on the specific country, the sectors involved within it and the specific barriers addressed.

Differences among financing costs (debt as well as equity) can significantly affect the competitiveness of low-carbon projects (i.e., renewable energy) versus traditional fossil-fuel technology in developing countries. Higher financing costs in developing countries indicate the presence of one or more of the barriers mentioned, either actual or perceived, and this affects the perception of investment risk. In order to attract private-sector investment, a country needs to provide potentially high return rates to investors. Generally, the main issue in attracting financing for a transition to low-carbon development, especially in the energy sector, is not so much the generation of capital as it is the lowering of investor risk (UNDP, 2013b).

A number of mechanisms have been applied to make investing in low-carbon growth more attractive. These might consist of direct financial incentives or a combination of policy and financial instruments (See Box 2 below). For example, feed-in tariffs or power-purchase agreements increase the magnitude and improve the security of the expected return from renewable energy projects, improving their financial profiles. A functioning carbon market could potentially play a similar role. The provision of cheap debt or some kind of guarantee for investors against project failure decreases the cost of capital and can make a project more financially attractive. Furthermore, in situations in which local markets are not large enough to attract investors, the aggregation of projects into a portfolio allows for risk sharing and economies of scale.

BOX 2: MECHANISMS FOR IMPROVING THE COMPETITIVENESS OF LOW-CARBON INVESTMENT

UNDP divides mechanisms aimed at lowering investment risk in low-carbon energy into two groups:

- Policy instruments attempt to eliminate barriers that make low-carbon investment riskier. Policy instruments may include support for policy design, institutional capacity building, resource assessments, policies on grid connection and management, and skills development for local operations and maintenance.
- Financial instruments do not attempt to address barriers directly, but rather share investor risk with public actors such as development banks. Such instruments include loan guarantees, political risk insurance and public equity co-investments.

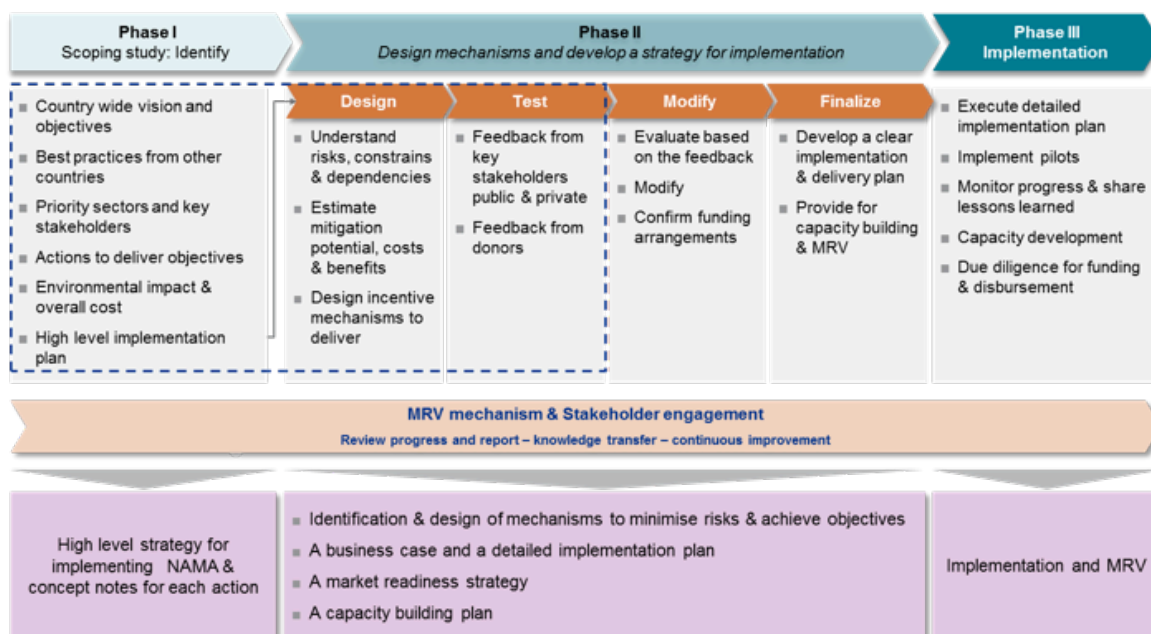
Risk cannot be completely eliminated through policy instruments or completely transferred through financial instruments. However, risk reduction can be aided by direct financial incentives, such as price premiums, tax breaks, carbon offsets, and so on. The overall aim is to achieve a risk/return profile that will attract private-sector investment.

Source: UNDP, 2013b

DESIGNING EFFECTIVE LEDS AND NAMAS

As shown in Figure 3, the development process of LEDS and NAMAs which effectively address barriers to low-carbon transition and enable investment in low-emission alternatives has three phases: the scoping study, the design and testing phase and, finally, implementation.

FIGURE 3: PHASES OF LEDS OR NAMA DEVELOPMENT



Source: Adapted from WBCSD, 2013.

During the first phase, the scoping study, a country identifies its overall objectives, likely target sectors and emission-reduction measures. Then it develops a high-level strategy for attaining the set objectives in terms of the transition to low-emission development, either nationally or within the sectors targeted.

The second phase includes the detailed design of particular interventions. The design must take into account any specific barriers and risks to low-emission investment and include an evaluation of mitigation costs and benefits. Initial design options are to be tested with the key stakeholders and modified as needed. A detailed business case and implementation plan are developed, at which point the country is ready to move to the final implementation phase. It is important to note that the implementation plan should include a market readiness assessment and a capacity-building plan.

The key elements in designing and implementing effective LEDS and NAMAs are political commitment, coordination and engagement, a solid technical foundation and input mechanisms and the establishment of effective partnerships (UNDP, 2011). To ensure transparency, accountability and continuous learning, a Measurement, Reporting and Verification (MRV) system should also be designed and used throughout the three stages.

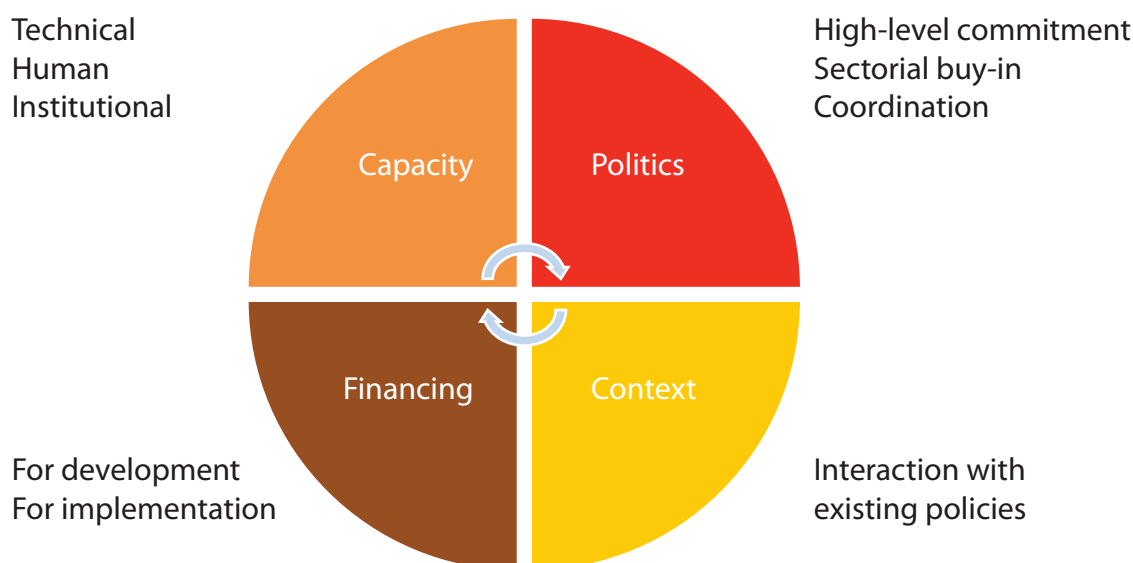
Most LECB-participating countries are currently between phases 1 and 2, represented by the dotted box in Figure 3. Some are at a more advanced stage than others, but so far no country has a LEDS or a NAMA fully in the implementation phase. The following chapter analyses experiences LECB countries have had in the design and implementation of LEDS and NAMAs to date, focusing in particular on the barriers they have encountered and the solutions they have come up with in the process.

Barriers to the Design and Implementation of LEDS and NAMAs

2

This study took a bottom-up exploratory approach to identifying the key barriers that countries experience in the process of designing LEDS and/or NAMAs. Barriers identified during interviews can easily be associated with the three pillars of low-carbon transition mentioned in Chapter 1: technology, financing and policy. The study shows that the majority of these barriers are related to financing and policy. As illustrated in Figure 4, this majority can in turn be grouped into those barriers related to political commitment and engagement, those related to capacity levels, those related to the wider policy context within the country and those related to financing for development and implementation. Below is a series of brief treatments of these major barriers, with recommendations on how to overcome them.

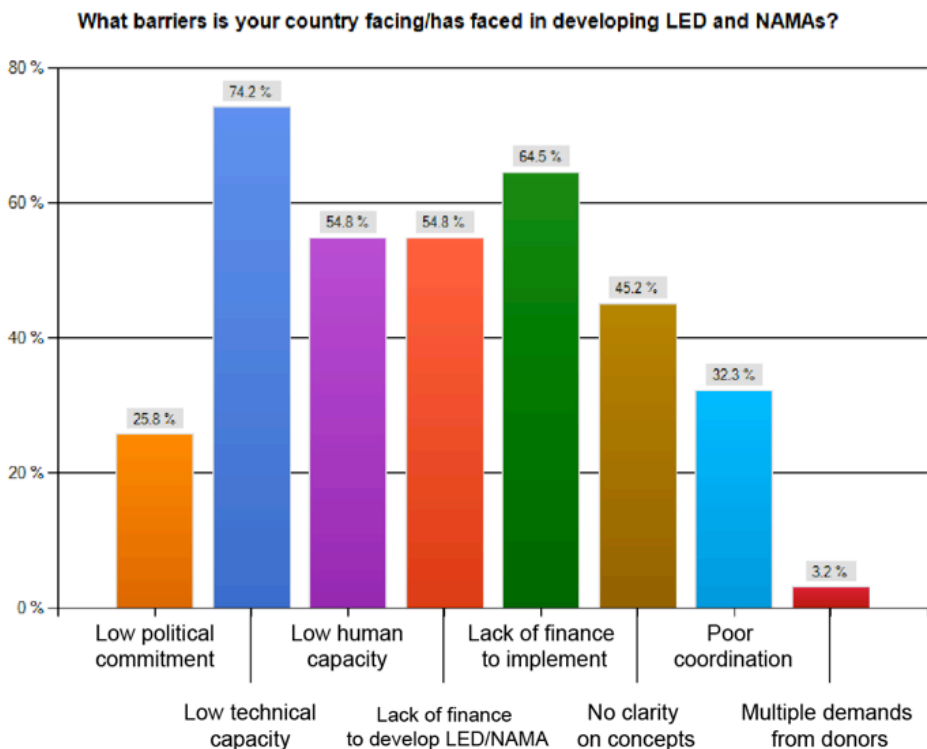
FIGURE 4: GROUPING OF PRIMARY BARRIERS TO THE DEVELOPMENT OF LEDS AND NAMAS IN LECB COUNTRIES



LACK OF CLARITY

A critical barrier mentioned in most of the interviews is the lack of experience with LEDS and NAMAs—more specifically, the lack of clear direction and focused guidance internationally on what LEDS and NAMAs should entail and how they are to be designed. At the moment, the international community is at a point at which the concepts of LEDS and NAMAs are rather open-ended and not well defined. While a number of guidebooks have been produced by various organisations working in the field, there is no single clear international guidance on what to do and how to do it. This has been noted by experts from many countries across the regions as a particular challenge for ministries in charge of LEDS/NAMA development in the host countries. The results of the survey confirmed this message from the interviews: about 45% of respondents felt that the lack of clarity regarding the concepts of LEDS and NAMAs and the lack of guidance as to their design presented a hurdle for their respective countries (See Figure 5).

FIGURE 5: KEY BARRIERS THAT LECB COUNTRIES FACE IN THE DEVELOPMENT OF LEDS AND NAMAS



Several experts interviewed mentioned this clarity issue as affecting their direction in terms of what their governments want to do as part of their LEDS and particularly NAMAs. Some experts and policymakers see NAMAs as a major technology upgrade; others see it as an add-on to existing development strategies. The absence of a common view on this issue often leads to non-compatible positions among the major players within a country.

Several of those interviewed mentioned Reducing Emissions from Deforestation and Forest Degradation (REDD) as a positive approach. REDD has been a strong driver for mobilising national support for LEDS and NAMAs, most notably in African LECB countries, including the Democratic Republic of the Congo (DRC), Tanzania and Zambia. Cited as the main reasons for easier engagement in REDD activities are the advances made in international negotiations on this issue and the fact that clear technical guidance and financing sources for REDD exist.

Recommendation: Developing an internationally authoritative and accepted guidance on preparation of LEDS and NAMAs would help overcome this obstacle. Such guidance would be similar to methodologies previously developed by the Intergovernmental Panel on Climate Change (IPCC) on technical issues related to GHG inventories, or to UNFCCC guidance on the preparation of the National Communications under the Kyoto Protocol.¹

¹ For an overview of the Kyoto Protocol, see: https://unfccc.int/national_reports/reporting_and_review_for_annex_i_parties/items/5689.php

LACK OF CAPACITY

Noted as an important barrier by all interviewees was the lack of training, skills and knowledge to develop and implement LEDS and/or NAMAs. In particular, many countries lack the institutional and technical capabilities needed for the long-term planning horizons that LEDS and NAMAs involve.

Developing a credible and realistic NAMA proposal or a LEDS requires the establishment of a rigorous baseline. What is missing as far as this is concerned is technical capacity: the skills and underlying data to lay the groundwork, as well as the technical ability to apply the full suite of available tools for scenario building, modelling, forecasting and so on, in order to effectively inform decision makers on mitigation policy. As shown in Figure 5, low or absent technical capacity was rated as the most significant barrier by over 74% of LECB experts.

Two other issues related to the lack of capacities have been frequently mentioned: challenges in designing national and sectorial MRV systems and the lack of financial expertise necessary for designing financeable LEDS and/or NAMAs.

The lack of human resources—ministerial staff for getting the work done—has also been noted as a major barrier by nearly all interviewees and by over 54% of the survey respondents.

It was noted in the interviews that there are often different levels of capacities within different ministries. Energy ministries, for example, are generally better equipped with human and financial resources than ministries of agriculture and the environment. Yet responsibility for the climate-change agenda usually rests with the latter. This is a particularly significant challenge in Africa, where climate-change units are generally new, very small, with relatively little political power and struggling with multiple priorities. Such units are rarely integrated into the country's development and planning work.

All of this confirms a clear need for capacity building. However, most countries participating in the study have not dedicated the time needed to effectively build internal capacities in order to address the issue of climate change. According to several experts, a great deal of capacity-building effort to date has been reactive and donor-driven, rather than effectively pre-determined, planned and strategically delivered by host countries. By “reactive,” we mean that most countries' capacity-building efforts consist of reactions to strong pressures such as donor proposals or adjustments to the international framework, in an attempt to start showing results. Recently however, more countries are taking the time to think about making capacity building an internal priority, rather than depending on the possibility of some externally offered approach. The LECB Programme is an example of such internalising, and the case of Chile in particular is demonstrative of successful efforts to build institutional, technical and human capacities.

Recommendation: Capacity building and the pooling of potential human resources for climate-change work should be considered part of the planning stage for LEDS and NAMAs. Strategic planning in this area focuses on building partnerships with relevant sectorial ministries. They must be included in capacity-building activities in order to overcome this barrier.

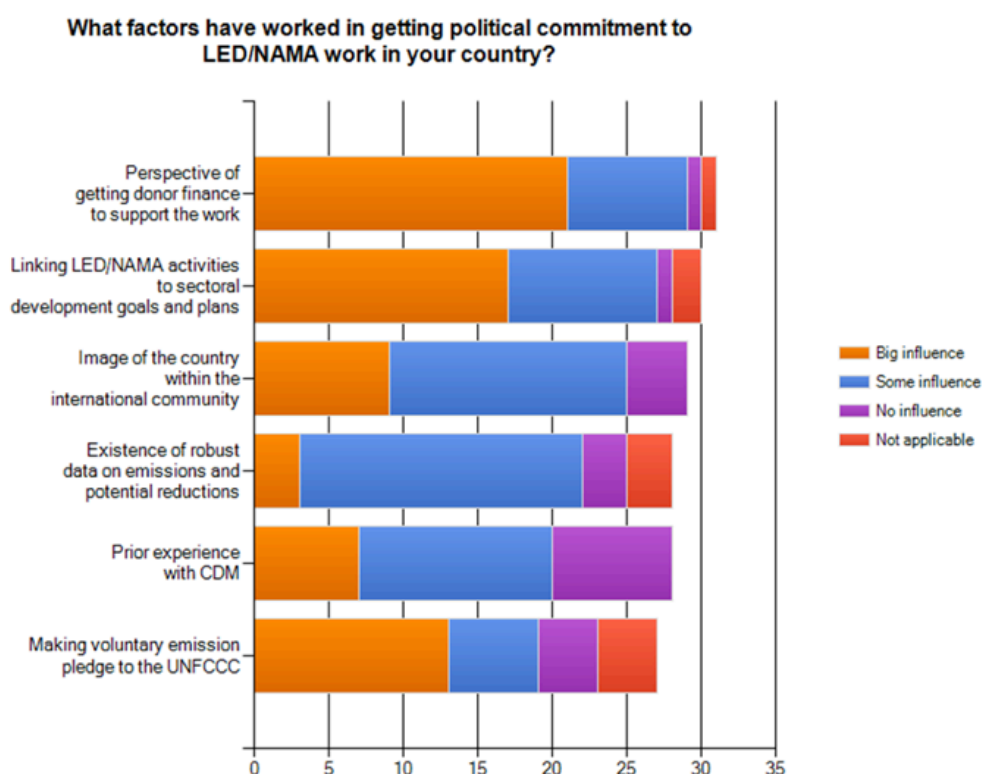
POLITICAL COMMITMENT, COORDINATION AND ENGAGEMENT

A precondition for an effective LEDS or NAMA that leads to transformational change is strong high-level commitment within the host country. Securing such commitment and obtaining the political buy-in of powerful ministries has been noted as a critical challenge in countries across all regions and levels of economic development. It has not proved to be an easy task to overcome the lack of political will and make

the case for climate-change mitigation activities. Making these prominent among the priorities of economic growth and social development issues such as poverty, health and education has indeed been a challenge, as has achieving engagement, coordination and cooperation among key sectorial ministries.

According to the survey, the most important factor in securing political commitment and engagement within the host countries is that of obtaining international climate financing (See Figure 6). Several countries noted that the promise of financing has allowed them to garner interest from the sectorial ministries as well as from the Ministry of Finance.

FIGURE 6: FACTORS IN SECURING POLITICAL COMMITMENT TO LEDS AND NAMAS

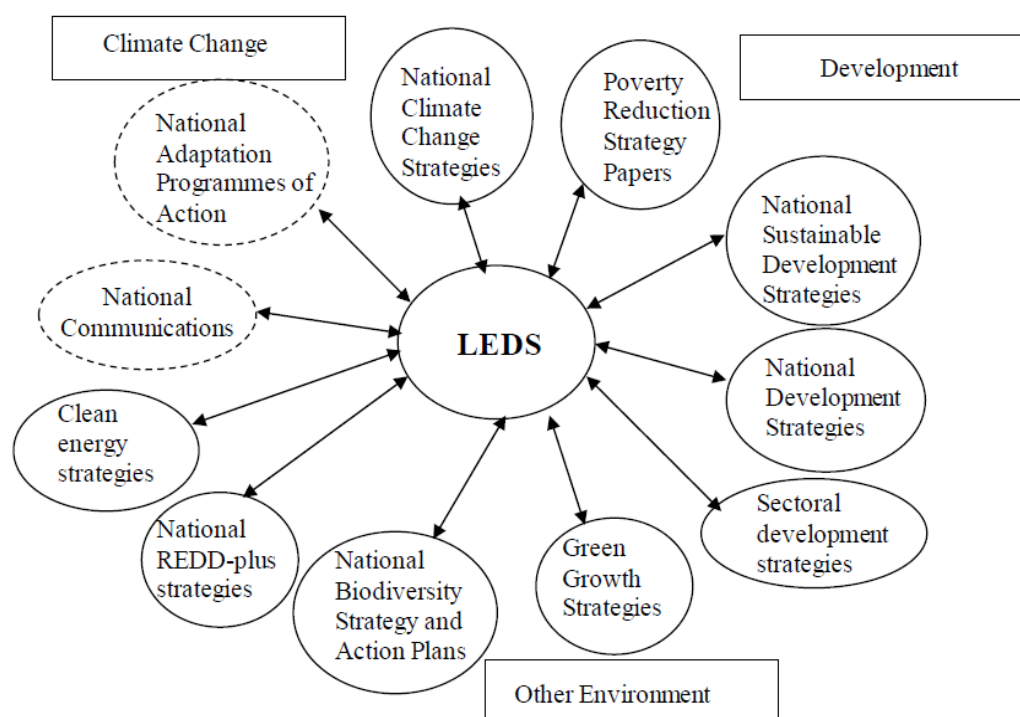


In some countries in which a LEDS or NAMA proposal is seen as likely to attract external climate financing, the climate-change units and the pertinent ministries have taken control of the process and related financial flows, and have been reluctant to involve other agencies. This hampers the ability to mobilise internal political support. By contrast, countries that have secured the participation of multiple key sectorial ministries in the LEDS and NAMA process have so far been more successful in raising international finance.

Two other factors have had roles in terms of addressing the barrier of obtaining political commitment and coordination. One is a transparent and inclusive planning process; the other, also appearing in Figure 6 above, is the alignment of LEDS and NAMAs with key sectorial and national development priorities. By this we mean designing them to build on existing relevant strategies and plans.

Figure 7 presents examples of possible relevant initiatives. It is clear that engagement of stakeholders involved in relevant processes and good policy alignment and coordination among them are important in order to ensure coherence. In any country, as the policy development process progresses and climate policy matures, so do the institutions, and the coordinating role becomes less demanding.

FIGURE 7: EXAMPLES OF RELEVANT STRATEGIES FOR THE DEVELOPMENT OF LEDS AND NAMAS



Source: Clapp et al., 2010.

Box 3 provides insight into preferable ways to link LEDS and/or NAMAs to national and sectorial planning.

BOX 3 PROVIDES INSIGHT INTO PREFERABLE WAYS TO LINK LEDS AND/OR NAMAS TO NATIONAL AND SECTORIAL PLANNING.

Based on the results of this study, it is fair to say that the importance of linking a LEDS and/or a NAMA to national and sectorial development goals has been well recognised by their developers in LECB countries. Yet a number of practical challenges on how to best achieve this goal still remain.

There has been debate in several LECB countries on whether it is better to start from a comprehensive LEDS and then move towards developing specific NAMAs or whether this can be done in parallel. The argument in favour of the former approach is that having in place an overall objective as well as scenarios for GHG mitigation trajectories allows for more informed high-level decision-making on the individual NAMA proposals and ensures their full integration into the overall strategy. The argument in favour of the latter approach is that the development of a comprehensive LEDS may take a few years. While it is being developed, why not go ahead with piloting and implementing specific mitigation actions such as project-based NAMAs in priority sectors? Another argument for the latter approach is that the first among developing countries to move and present financeable NAMA proposals might have the edge on accessing limited available international financing.

Examples of both approaches can be found among LECB countries. This analysis has not shown one or the other to be particularly more effective. The choice depends on national circumstances. For example, Kenya had focused on the development of its national climate-change plan before developing specific NAMA proposals. The national plan calls for cleaner production centres and transparent institutional processes, including the creation of a Climate Change Secretariat. With this done, planners in Kenya have shifted their attention to specific mitigation actions and it is expected that their development will move quite quickly.

By contrast, Chile and Colombia have been advancing on both fronts simultaneously, developing a national strategy through Mitigation Action Plans and Scenarios (MAPS) projects, while also advancing individual NAMA proposals. These two countries were among the first to receive funding for NAMAs from the NAMA Facility, funded by Germany and the UK.

Figure 6 shows other factors that experts from countries have also pointed out as important to obtaining political commitment and coordination. One is a country's perceived international standing, and in some countries, this has been seen to improve by having made an international voluntary pledge under the UNFCCC.

Another factor is the existence of robust data that serves as a basis for decision-making on climate-change policy. This in turn is particularly important in the context of determining the extent of any potential international pledge to reduce the growth of or absolute volume of GHG emissions. Countries that have had success in mobilising political commitment at the early stages of the process, such as Chile, Colombia and Mexico, have all noted the importance of high-quality data that had already been available due to prior work in the area. In this regard, the technical capacities, experience and data gained through participation in the Clean Development Mechanism (CDM) have played a positive role overall. This has been the case, for example, in Mexico, where after the decline of the international carbon market, national CDM experts and investors have built strong bottom-up pressure, essentially creating a private-sector-led demand for climate action.

Several countries have pointed out that an important factor for success in overcoming the coordination barrier has consisted of personal and historical relationships between ministries. One example of this is Ghana, where coordination gaps have been effectively addressed due to the presence of a focal point who is technically knowledgeable in different areas of climate policy and who has strong networks in various relevant ministries.

BOX 4: ATTAINING POLITICAL COMMITMENT AND OVERCOMING COORDINATION BARRIERS

Colombia has made significant progress in using the LECB Programme to mainstream various climate-change projects and processes that complement one another. One critical success factor has been the political know-how and institutional credibility of those in charge of the climate-change agenda. Another has been Colombia's learning-by-doing approach to capacity building, in which local teams remain stable and active over time and maintain the engagement of needed professionals. This continuity has led to what is essentially institutional capacity building, with a steep learning curve among local experts. The teams are also very active in interacting with their peers and involved in South-South cooperation, e.g., through providing advice to Jamaica and Trinidad and Tobago. To address the coordination barrier, the same person has been put in charge of MAPS and LECB projects.

Tanzania, Zambia and Kenya are making the case for their LEDS and NAMA initiatives by linking them to real-world social and economic benefits, rather than designing programmes in the abstract. However, some least developed countries (LDCs) face serious challenges in aligning sustainable development criteria with climate policy, since there is strong pressure to improve energy access in the cheapest and quickest way. In some LDCs, there are no sectorial plans. The Democratic Republic of Congo, for example, does not yet have a comprehensive agricultural or energy strategy in place, which makes NAMA development more challenging there.

In Bhutan, planning and budgeting barriers have been addressed through the development of the Environment, Climate Change and Poverty (ECP) framework guidelines. The objective is to ensure mainstreaming of ECP concerns into the 11th five-year plan for 2013-2018. Key objectives have been established to achieve the country's four pillars of "gross national happiness," and sectorial plans and projects are aligned with Bhutan's goal of "self-reliance and green socio-economic development" and commitment to remain carbon neutral.

A number of countries have made considerable progress in prioritising NAMAs. For example, Uganda has developed a set of criteria aligning national policy and sustainable development goals. Over 40 experts have participated in this process, representing various stakeholders. Similarly, Lebanon has applied multi-criteria analysis as part of the stakeholder engagement process while prioritising its NAMAs.

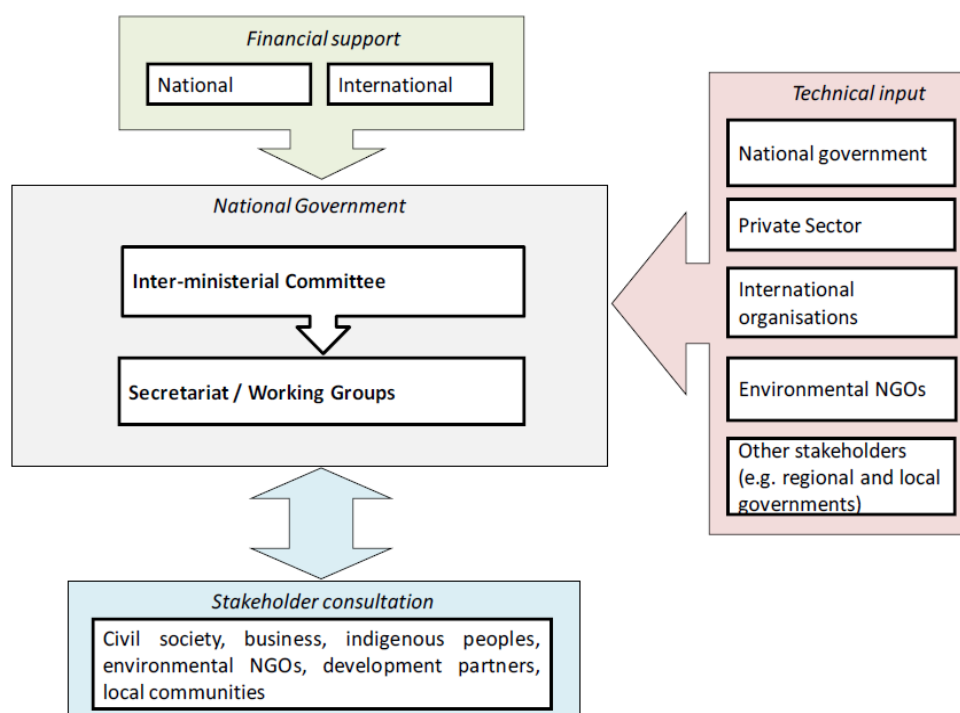
Chile and Colombia have highlighted success with developing a process through the MAPS2 projects. Box 4 provides some further examples of experiences relative to attaining political commitment and overcoming the coordination barrier in LECB countries.

Another consideration related to the coordination barrier is that of ensuring the continuity of processes once they are established. Experts have noted that the lack of continuity is a particularly difficult barrier under conditions of low political and institutional stability. In many countries, changes in the political power structure and in institutions result in the high turnover of decision-making actors. This makes it extremely difficult to build cooperation among stakeholders and to develop a sense of ownership within organisations responsible for LEDS and NAMAs. This has been the case in Zambia, where after a major restructuring of executive power, it has been a challenge to engage various ministries and achieve stakeholder buy-in. Currently this problem is being addressed through the establishment of an interim climate-change secretariat to help with coordination issues. Also, key institutions have been identified in order to help sectors get involved in the NAMA development process, and a NAMA Working Group has been established.

The ways in which interagency coordination is achieved differ from country to country. In most cases, however, they include some variation of the elements, including a coordination mechanism within the national government, arrangements for stakeholder consultation and for financial support, as well as channels for technical input from a variety of sources (see Figure 8).

2 MAPS is a collaborative effort among developing countries to support the long-term transition to low-carbon, climate-resilient economies. It combines policy and planning with research, modelling and engagement of stakeholders from key sectors. The initiative grew out of the experience of the government-mandated Long Term Mitigation Scenarios (LTMS) process in South Africa in 2005-2008. Currently, Chile, Colombia, Brazil and South Africa are implementing MAPS projects.

FIGURE 8: TYPICAL INSTITUTIONAL ARRANGEMENTS FOR INTERAGENCY COOPERATION AND STAKEHOLDER INVOLVEMENT



Source: Clapp et al, 2010.

Recommendation: A clear planning process must be established in the early stages of LEDS and NAMA development, with careful thought given to who needs to be brought into the design process and what appropriate and meaningful roles should be allocated to each stakeholder. Whenever possible, it is advisable to capitalise on existing cooperation and positive relationships with other ministries. A strategy must also be developed to keep the work moving forward if there is a change in personnel.

THE BROADER POLICY CONTEXT

While designing climate-change mitigation strategies and actions, it is essential to consider the country's broader policy context and the ways in which proposed policy solutions would interact with it. When policies exist with objectives that run counter to those of low-emission development, such as fossil fuel subsidies, the design of LEDS and NAMAs is more economically and politically challenging. One sector in which this is often the case is that of energy. This of course is an extremely important sector from the perspective of reducing GHG emissions, but attaining the effective engagement of Ministries of Energy has been a challenge in many LECB countries. Energy security and improved access to affordable, reliable sources of energy are often seen to be jeopardised by climate-change policies, and this puts conflicting concerns on the political agenda.

With regards to engaging the energy sector, some positive examples from LECB countries include identifying teams or units within energy ministries from the start, which deal with related issues that are complementary to the low-emissions agenda. In some cases, countries begin their stakeholder engagement work by focusing on energy efficiency and renewable energy. It has proven very effective to offer new modelling and policy evaluation tools and arguments that raise the awareness of ministries of energy on the issue of reducing GHG emissions, help them evaluate the co-benefits of policy interventions—such

as job creation, resource conservation and reduced conventional pollution—and to identify new financing opportunities that are aligned with their priorities (e.g., through climate-related financing within the context of NAMAs). This type of approach has been made in in Chile, Ghana and several other countries.

Recommendation: At the outset of LEDS or NAMA development, it is important to evaluate the country’s wider political and economic context—the various incentives and challenges that key stakeholders face—and to identify policies and market conditions that may affect the feasibility and effectiveness of LEDS and/or NAMA development and implementation. Measures to address potential barriers must be considered and stakeholders whose involvement may help overcome them should be identified and engaged.

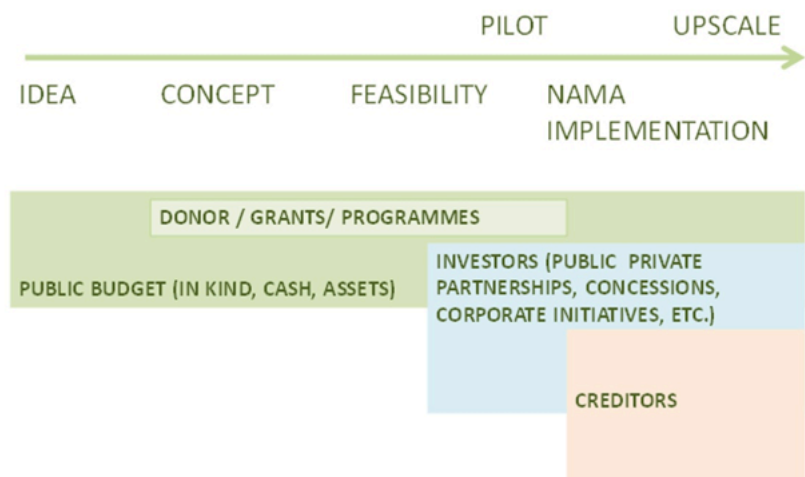
FINANCIAL BARRIERS

Not surprisingly, the issue of financing for both development and implementation of LEDS and NAMAs was found to be the most important barrier in the majority of countries participating in the study. Most NAMAs are expected to have a phased financing structure that is based on a combination of financing sources (See Figure 9 below). When considering financing barriers, a distinction should be made between the financing required to design a low-emission project or programme (idea, concept and often a feasibility study), and the investment and financing required to implement those projects and programmes (from piloting to scaling up).

Financing for design is expected to come primarily from either domestic or international public sources. Since policy interventions that are part of LEDS and NAMAs need to be set in place by the government, it is unlikely, although not impossible, that the private sector or non-profit organisations will invest in the development of a NAMA concept. They would need for the government to have bought into the idea and be ready to support and pursue it in the future.

Financing for implementation includes a combination of public and private funds. Public sources are needed to implement a particular policy incentive being established, to directly fund a particular measure, to administrate, monitor and verify the programme, etc. Private funding is expected to be the major source of underlying investment for projects designed to lower GHG emissions.

FIGURE 9: PHASED STRUCTURE OF NAMAS AND MULTIPLE SOURCES OF FINANCE



Source: UNDP LECB programme

Financing is therefore seen as the central issue and precondition for commencing the development of LEDS and NAMAs, and international finance has so far played a critical role in this. Nevertheless, as mentioned above, most countries see the prospect of attracting international financing as the most critical factor in garnering domestic high-level political commitment to a climate-change agenda and in securing participation of sectorial ministries.

This relationship creates a paradox in terms of financing and political commitment. International financing is required to draw the interest of political leaders; however, demonstration of strong political commitment is normally required as a precondition to financing. Many interviewees cited this paradox as a particularly thorny barrier, noting that countries are often being caught trying to decide where to start: by obtaining political commitment or by securing financing.

Recommendation: Based on the experiences of LECB countries so far, and taking into account international developments on climate financing and NAMAs, it is possible and advisable to start by securing political commitment domestically during the scoping phase of LEDS and/or NAMA development. This can be effectively done by linking LEDS and NAMAs to national and sectorial development priorities and emphasising sustainable development benefits. The potential for securing international financing once political commitment is in place can be publicised by sharing information about which donors and international institutions are supporting NAMA proposals, as well as by providing numbers on amounts and distribution of such financing provided so far. These might come from such information sources as ODI's work on tracking climate financing,³ examples of funds disbursed by the NAMA Facility, etc.). This information could help secure initial enough political interest and commitment for government entities to invest some effort during the scoping and stakeholder engagement phase. Since donors are looking for political commitment as a key criteria for providing financing for LEDS and NAMAs, domestic political commitment and initial ideas on policy design need to come first.

As a country moves along to the design phase after initial political commitment has been obtained, international financing starts to play a greater role. During the implementation phase, if incentives for the private sector have been properly designed and established, it is expected that public financing will be outweighed by private.

With limited public financing resources available, some experts noted that sometimes there is an over-reliance on the expectation of international financing for LEDS and/or NAMAs. This results in the perception that these strategies are subject to development cooperation or imposed from outside.

There is also potential for mobilising domestic resources through the system of public expenditures and by pooling and sharing funds allocated for related issues. Building on other on-going relevant domestic initiatives is another strategy employed to allow GHG mitigation activity to be scaled up with a dependence on fewer new funding sources. For example, Peru is implementing Power Purchase Agreements for renewable energy from the country's state-owned enterprises. Evaluation of the impacts of this initiative—both in terms of financial expenditures and resulting GHG emission reduction—as well as being able to conduct MRV on it within the context of a LEDS or a NAMA would allow Peru to justify continuing the effort, as well as to better evaluate the possibility of further scaling up.

3 See: <http://www.odi.org.uk/programmes/climate-environment/climate-finance>

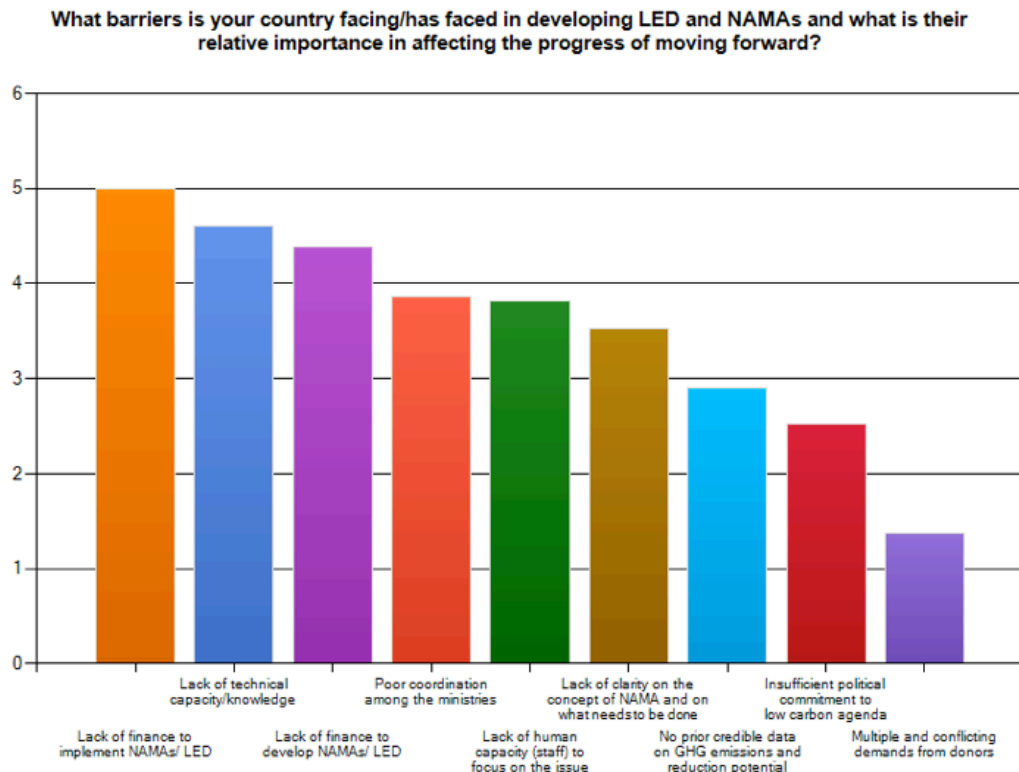
Recommendation: Examine the potential for raising domestic financing for LEDS and NAMA development by improving the national public expenditure system. Improving the accounting of domestic expenditures on climate change provides greater leverage in negotiations with prospective donors, since co-financing greatly increases the chances of securing international financing. Again, whenever possible link new actions under LEDS and NAMAs to policy initiatives that are already underway, and take the lessons learned from these into account.

The absence of clear, uniform international guidelines on financing, which accurately outline the requirements for funding for LEDS or NAMAs, often causes prospective financiers to make multiple and sometimes conflicting demands, and this has been cited as a barrier. Financier coordination is a particular challenge in countries with weak institutional infrastructures. It has been noted, however, that several recent financier coordination initiatives (i.e., the International Climate Initiative’s Enhanced NAMA Support, the LEDS Global Partnership, the UNFCCC NAMA Partnership, and the International Partnership on Mitigation and MRV—are helping improve coherence in approaches to international financing.

Recommendation: Unified guidance on financing needs to be developed, in particular, guidance on the minimum financial information that countries should present when wishing to attract external funding for a LEDS or a NAMA.

As part of the survey, the participating LECB countries were asked to indicate the relative importance of a particular barrier that their country is facing, rating it as either “very important,” “relevant” or “not applicable”. The lack of financing for implementation of a LEDS and/or NAMA was voted the most significant barrier, followed by the lack of technical capacity and knowledge and the lack of financing for the activities’ development. A synthesis of the results is shown in Figure 10.

FIGURE 10: RELATIVE IMPORTANCE OF BARRIERS TO LEDS AND NAMAS



3 Selected Case Studies of LECB Countries

This chapter presents several case studies revealing the experiences that LECB countries have had when designing LEDS and NAMAs, with particular focus on barriers and the solutions developed to overcome them. The case studies of Chile, Vietnam, Ghana and Mexico were selected in order to represent experiences across the regions of Africa, Asia and Latin America and of countries at different stages in the development and implementation of their LEDS and NAMAs.

The case study of Chile presents the experience that country had in achieving high level political commitment, building institutional capacities for the transition to low-carbon development and mobilising financing. Mexico is effectively using its climate-change strategy and legal framework to engage stakeholders, while Vietnam is developing coordination mechanisms for climate-change policies based on its green-growth strategy. Ghana has been successful in combining some sectorial development goals and climate-change mitigation objectives and is working on mainstreaming climate change into national development planning and fiscal management programmes.

SECURING POLITICAL COMMITMENT AND BUILDING INSTITUTIONAL CAPACITY: THE CASE OF CHILE

Chile is a country in the Organisation for Economic Cooperation and Development (OECD) and has high aspirations of economic growth, including the objective of becoming a developed country by 2020. This causes great emphasis to be placed on policy processes related to economic development, GDP growth and social issues such as poverty eradication, health and education. These priorities might have been barriers for the Ministry of Environment and its announcements of the need to move economic growth away from carbon-emitting activities and shift to low-carbon technology. Yet Chile has emerged as one of the leaders among developing countries transitioning to low-carbon development.

At the 2009 COP in Copenhagen, the Chilean government made a pledge to reduce the country's GHG emissions. Chile has subsequently been among the first countries to develop detailed NAMA proposals (taking some of them to the pilot stage), the first country to register a NAMA with the UNFCCC, and one of the first recipients of financing from the NAMA Facility, funded by Germany and the United Kingdom.

Chile has successfully attained internal support for climate-change policy. During the initial stages, the leadership has come from technical levels within ministries, rather than from above. Based on seven interviews with domestic policy makers and private-sector representatives, as well as several interviews with international practitioners involved in Chile and on existing publications, this case study discusses experiences Chile has had in its low-carbon efforts, including barriers encountered along the way.

Chile ratified the UNFCCC in 1994 and in 1996 established a National Advisory Committee of Global Change. Since then, the country has made significant advances in incorporating climate change into long-term development planning through institutional reforms and extensive studies on sectorial impacts and mitigation potential. In 2006, the National Strategy for Climate Change was adopted, followed by the National

Climate-Change Plan, which resulted in the establishment of the Inter-ministerial Committee on Climate Change in 2009. This includes representatives from key ministries and civil society (Globe International, 2013). In 2010, the Ministry of Environment was established, based on the former National Commission on Environment.

Due to its level of economic development, strong institutional base and pre-existing relevant data, Chile had a good head start in its process of developing a climate-change policy, when compared with many other developing countries. Chile's approach to climate-change policy and to securing political buy-in has demonstrated unique features, and therefore can provide useful insights for countries that are at an earlier stage in the process. Barriers to developing LEDS and NAMAs have also been present in Chile, namely the lack of technical capacity, the absence of clarity on what needed to be done, limited domestic resources to commit to developing strategies and programmes and the lack of financing to implement their later phases.

At the outset, the approach generally taken in Chile focused on developing collaboration among the ministries, the private sector and consultants. The Ministry of Environment took a facilitative position, attempting to enable sectorial ministries to take the lead. It saw its role as one of transmitting knowledge to other ministries, including those dealing with infrastructure, energy, transport, public and residential energy consumption, forestry, waste management, agriculture and cattle, rather than trying to take control of the process. As a platform for engaging people, the Ministry of Environment has also relied on components developed and set in place earlier, including the 1996 Inter-Ministerial National Advisory Committee on Global Change.

A key objective, and therefore a critical success factor, was obtaining support from the Ministry of Finance. This goal was identified early on in the process because without that ministry's support, strong opposition to climate-change mitigation activities would have come from other sectors. At the time, there was a dearth of credible empirical examples of how to create low-carbon growth in a developing economy, effectively unlinking GDP growth from carbon emissions. Furthermore, there was no staff at the Ministry of Finance explicitly dedicated to "green growth" or climate-change issues. Within this context, emphasis in discussions with the Ministry of Finance has been placed on the potential of energy efficiency and clean energy, while keeping in line with Chile's key developmental challenges, including high prices for primary energy and severe energy shortages. The ministry's support was secured when the potential opportunities for domestic planning, improved international standing and future benefits for the Chilean economy were clearly laid out.

Another important success factor has been the existence of necessary data. Chile had prepared a GHG inventory and collected GHG data as part of the INFCCC National Communication (NC) process, and this has helped enable the country to measure and manage its GHG emissions. The completion of its Initial National Communication (INC) in 2000 (Government of Chile, 1999) and its Second National Communication (SNC) in 2011 (Government of Chile, 2011) provided great help in enabling internal political dialogue both before and after making the international pledge at COP 15.

According to interviewed government experts, COP 15 in Copenhagen in December of 2009 was a transformational moment for Chilean climate-change policy. The Chilean delegation at COP 15 was the largest the nation had ever sent to a COP and included representatives from the key ministries. The government pledged to "develop NAMAs in order to reach a 20% deviation in emissions-growth trajectory below BAU by 2020, as projected from 2007. To accomplish this, Chile will need a significant amount of international support" (Government of Chile, 2010). It then followed up with a formal submission to the UNFCCC, confirming the pledge in August 2010. The presence of that international pledge has provided credibility and legitimacy during subsequent domestic discussions. With the arrival of a new administration in 2010, the team at the Ministry of Environment was expanded and could allocate more time to work on NAMAs.

While the proposed NAMA actions had to result in reducing GHG emissions, they had also to be in line with sectorial policies. The main emphasis was on getting resources for the priorities of the sectorial ministries by focusing on GHG emissions. (Interview with a government expert)

Making the international emission pledge operational and developing a practicable LEDS has largely been enabled by the MAPS project, which focuses on baseline clarification and identification of the most effective mitigation options for Chile in the short, medium and long terms. The project is based on the political mandate concept developed by South Africa, and it operates via a multi-stakeholder process that involves the public and private sectors, academia and NGOs. An inter-ministerial committee has been created, and all ministers signed a letter of support for the MAPS project, which ensured national commitment to the process, with 2015 as a target year. The project is effective in two major ways: it produces technical data and it mobilises political processes. In total, more than 250 experts from Chile are involved in the MAPS project, including 60 senior strategic scenario-building experts, engaged in developing scenarios for the key sectors. This process involves the efforts of sectorial ad hoc working groups, which include project developers, investors and consultants, among other actors. A ministerial mandate to conduct the work helps to keep a high level of participation and maintains political commitment. The LECB Programme in Chile is also contributing by helping to build capacities in key areas. The next challenge is to win the acknowledgment of key stakeholders that the data being produced by the MAPS project is credible and realistic.

In order to initiate the NAMA process, a letter from the Minister of Environment was sent to the sectorial ministries, soliciting proposals on actions that would reduce GHG emissions while keeping in line with sectorial policies. The emphasis was on mobilising resources for the priorities of sectorial ministries by focusing on GHG emissions.

The prospect of securing international financial support won support from the sectorial ministries. Based on information from them, the Ministry of Environment and the Ministry of Foreign Affairs launched an international fundraising process. Several meetings were held with prospective donor countries. Financing raised as a result of these efforts was used to fund feasibility studies for the design and implementation of various NAMAs.

By 1 September 2013, Chile had submitted three NAMAs to the UNFCCC registry, seeking support for their implementation. These are: (1) Implementation of a National Forestry and Climate-Change Strategy and the development and implementation of a Platform for the Generation and Trading of Forest Carbon Credits; (2) Expansion of self-supply renewable energy systems (SSRES); and (3) the National Program for Catalysing Industrial and Commercial Organic Waste Management. Chile also submitted for recognition a NAMA on Clean Production Agreements. This is being implemented entirely with domestic resources (UNFCCC NAMA Registry). Further NAMA proposals are currently being prepared.

Chile was among the first countries to be awarded funding from the NAMA Facility at COP 19 in Warsaw in November 2013 (Government of Chile, Ministry of Energy 2014). The country's aforementioned SSRES initiative was also one of the four first projects slated to receive funding from the NAMA Facility. The goal of the SSRES NAMA is to displace approximately two million tons of CO₂ by developing 60 MW of electricity from biogas, biomass and solar photovoltaic systems in Chile's commercial-industrial sector.

As is also true in other countries, maintaining political commitment independent of the election cycle is high on the agenda in Chile. The approach taken to ensure such continuity has been to build a strong independent technical foundation, utilise an extensive stakeholder process within the MAPS and other projects, and rely on the international commitment made by Chile in the UNFCCC process, with continued emphasis on the benefits for the local economy. The MAPS project is aimed at providing robust analyses and generating information in a transparent and credible manner in order to inform and enable decision

making, regardless of the political perspective of the policy makers involved. Due to stakeholder buy-in, an informed constituency of experts in key sectors is being created, and the data and analyses produced are being internalised within the government, ensuring continuity that is not dependent on the election cycle.

Climate-change policy is seen as being institutionalised in Chile. As one interviewee said, it is a “policy of the state rather than one of a particular government or an issue being promoted by a single party.” The need to address climate change and transition to low-carbon growth has been endorsed, in principle, by the nation’s main political parties. There exists awareness that momentum is moving international climate policy towards establishing an international policy system, in which case it makes sense for Chile to be proactive and progressive. Chile also remains an active advocate for greater international leadership on climate change, working at the regional level as well through the Latin American and Caribbean Initiative for Sustainable Development (Spanish acronym ILAC).

In Chile, there has been a clear link between the national process and international negotiations. International momentum prior to Copenhagen as well as Chile’s desire to maintain its leadership in international negotiations by honouring its pledges have helped maintain policy continuity at the national level. The ability to raise funds and secure international financial support have made GHG mitigation efforts seem more worthwhile and have generated political interest at the ministerial and technical levels. At the same time, high-level political commitment and participation of multiple actors has resulted in greater interest from donors. Looking forward, the next challenge for Chile is to develop a credible and robust MRV system, engage the private sector in the development, secure financing and implement the proposed NAMAs, while maintaining overall political momentum with regards to support for climate-change policies.

UTILISING A GREEN GROWTH STRATEGY FOR LOW-CARBON TRANSITION: THE CASE OF VIETNAM

Vietnam is among the five most vulnerable countries in the world to the impacts of climate change (Dasgupta, S. et al., 2007). This has put the issue of climate change high on the country’s political agenda, with particular emphasis placed on adaptation. On a global scale, Vietnam’s GHG emission levels are relatively low. Yet since the nation’s transition to a market economy in 1986, and due in part to soaring energy consumption, these levels have been rising and are projected to continue rising rapidly over the next ten to twenty years.

Given that, due to natural disasters, Vietnam is already experiencing significant economic losses of up to 1.5% of GDP annually over the period 2001-2010 (Townshend, T., et al. 2013), and given the likely significant climate-change risks that the country faces in the future, the issue has become a political priority at the highest levels in this coastal nation. There has been progress on NAMAs in this generally highly supportive national policy environment, one of primarily centralised decision-making.

After ratifying the UNFCCC and the Kyoto Protocol in 1994 and 2002 respectively, Vietnam completed its INC in 2003. It then developed a national Sustainable Development Strategy in 2004 and launched a National Target Programme to Respond to Climate Change in 2008, coordinated by the Ministry of Natural Resources and Environment (MONRE). The programme is aimed at assessing climate-change impacts, developing action plans to respond effectively to them, enabling transition towards a low-carbon economy, and contributing to international cooperation to address the climate-change issue.

Following these efforts, the landmark Vietnam National Climate Change Strategy was adopted in December, 2011. The strategy outlines the overall vision and the objectives behind the nation’s efforts to address climate change, sets specific targets for key sectors, prioritises projects to be implemented over the period 2011 to 2015, and outlines plans for the period 2016 to 2025. It places green growth and a low-carbon economy among the central principles of sustainable development.

The above principles have been further emphasised in the Vietnam Green Growth Strategy, approved in September 2012. Part of the strategy states: “green growth, as a means to achieve a low-carbon economy and to enrich natural capital, will become the principal direction in sustainable economic development; reduction of greenhouse gas emissions and increased capability to absorb greenhouse gas are gradually becoming essential indicators in social-economic development” (Socialist Republic of Vietnam, 2012). Three strategic tasks are outlined, including Low-Carbon Growth, Greening of Production and Greening of Lifestyles.

To coordinate implementation of the Green Growth Strategy, an Inter-ministerial Coordinating Board was established under the National Committee on Climate Change. The Board is headed by the Deputy Prime Minister, and the Minister of Planning and Investment acts as the standing Vice-Head, along with four other Vice-Heads from the ministries of finance, industry and trade, agriculture and rural development and natural resources and environment. The Board includes representatives of various ministries, local authorities and representatives of associations as well. Its secretariat is under the charge of the Ministry of Planning and Investment (Asia LEDS Partnership, 2013).

In order to deliver concrete programmes and projects that are aligned with the overall vision and supportive of objectives for initiatives in the key sectors, activities have shifted to the technical level within relevant ministries. NAMAs and the perspective of getting international finance have been seen as a useful vehicle to achieve the objectives.

Not having benefited as much as some other Asian countries from the CDM in terms of number of projects validated or certified GHG emission reductions,⁴ there is a strong desire in Vietnam not to be left behind in terms of financing for NAMAs and to get ready for the Green Climate Fund. Another powerful driver for securing political interest in developing NAMAs within the country has been that of recent positive developments on climate policy in Indonesia and among its neighbours. There is a clear awareness that credible sectorial emission baselines and MRV mechanisms are required, as well as strong institutions that are able to develop and implement policies and projects.

Vietnam’s SNC was submitted to the UNFCCC in December 2010. The SNC contains the GHG inventory for the base year 2000 and estimates of GHG emissions for three key sectors: energy, agriculture and land use, land-use change and forestry (LULUCF) for 2010, 2020 and 2030. It also introduces a number of adaptation measures, GHG mitigation options and deployment of eco-friendly technologies in Vietnam.

4 Vietnam hosts a total of 270 CDM projects, which comprise 3.6% of the CDM projects in Asia and 0.9% of the total CERs in Asia, according to the UNEP RISØ CDM database (accessed 14 February, 2014).

Table 1: Prioritised technology types for reducing GHG emissions in Vietnam

	Sector/Technology	Availability/Scale
1	Energy Sector	
	- Wind-power technology	Short term/Medium
	- Energy-saving compact fluorescent lamps	Short term/Small and Medium
	- Large-scale heat and power (Cogeneration)	Short and Medium term/Medium
2	Agriculture sector	
	Biogas -	Short term/Small and Medium
	Nutrition improvement through controlled fodder - supplements	Short and Medium term/Small
	Wet and dry irrigation in certain rice growth stages -	Short and Medium term/Medium
3	LULUCF Sector	
	Sustainable forest management -	Short term/Large
	Afforestation and reforestation -	Short term/Large
	Rehabilitation of mangrove forests -	Short term/Large

Source: Vietnam Technology Needs Assessment, 2012.

With the support of UNEP, in order to prioritise its potential mitigation actions, Vietnam implemented the first phase of its Technology Needs Assessments (TNA) in 2010-2012 (Socialist Republic of Vietnam, 2012). Three priority sectors for GHG emission mitigation were identified (Nguyen Khac Hieu, 2013): energy, agriculture and LULUCF (See Table 1).

Subsequent work on the development of NAMA proposals is based on this initial prioritisation of sectors, and the NAMA framework is being applied to the formulation of concrete actions. As of 15 December, 2013, Vietnam had not yet submitted any NAMA proposal to the UNFCCC registry, but several ideas that are currently in development are shown in Table 2.

Table 2: NAMA proposals in development in Vietnam

NAMA	Stage	Sector name	Sub-sector	Objective
Supporting up-scaled mitigation in the cement sector	Concept	Industry	Energy efficiency process emissions	Development of cement-sector data and MRV systems, and design of a support scheme for cement-sector mitigation actions
Waste Sector NAMA: Waste to Resources for Cities	Concept	Waste		Reduce GHG emissions from the waste sector and contribute to sustainable development.
Wind NAMA in Vietnam	Concept	Energy supply	Renewable energy (wind)	Develop a detailed concept to support wind energy in Vietnam

Source: Ecofys NAMA registry (accessed 15 December 2013)

MONRE plays the role of coordinator, with other ministries—in particular the Ministry of Industry and Trade (MOIT)—taking the lead on most NAMA initiatives. Most proposals are at the early stages, and there is as yet no concrete discussion on financing.

There are a number of barriers to NAMA development and implementation in Vietnam. One of the issues observed by several experts was the slow pace of change up until now. This is due in part to conditions similar to those in many other countries: lack of experience, lack of technical capacities, and lack of clear direction on the technical end of work. The absence of clarity on what a NAMA should look like and how to develop MRV systems was seen as a serious barrier by interviewed experts. Having better international guidance would strongly benefit the ministries and allow for a more focused approach to selecting and designing proposals.

There are a large number of bilateral and multilateral donors involved in climate-related activities in various sectors. It has been noted by interviewees that often multiple and poorly coordinated demands from financiers create confusion within the teams working on various NAMAs and other climate-change activities at the ministries. Improved financier coordination in terms of priorities and technical requirements would be highly beneficial to the development of NAMAs and other climate projects in the country. Similarly, good institutional coordination and collaboration at the domestic level is important to ensure that financiers are responding to country needs and not vice versa.

Another set of barriers to LEDS and NAMAs in Vietnam relates to the country's overall policy context. High fossil-fuel-based energy subsidies make it difficult to ensure clear benefits from low-carbon investment for the energy sector. For example, an energy efficiency programme in the steel industry, under consideration as a NAMA, confronts the barrier that a simple increase in steel production brings a much higher return on investment than that from increasing efficiency. However, most large industrial enterprises in Vietnam are state-owned, which provides an opportunity for stakeholder engagement in the government-administrated NAMA programmes.

In general, all interviewees from Vietnam noted a high degree of positive momentum and good will towards attaining practical outcomes on the part of the government. At the moment, the NAMA development process is driven top-down by the ministries in charge of the particular NAMA proposals. The challenge lies in developing cooperative efforts between various ministries. Save for a few instances, there is still a strong culture of working within rather than across administrative lines, and outreach to development and sectorial ministries remains limited.

Strong political commitment to green growth and a low-carbon agenda provides critical stimulus for the development and implementation of climate-change mitigation programmes and projects in Vietnam, including NAMAs. However, the success of these efforts requires further building of technical capacities locally, improving the transparent and effective involvement of stakeholders in the public sector, and increasing outreach to project developers, including those in state-owned enterprises and in relevant areas of the private sector.

MAINSTREAMING CLIMATE CHANGE INTO DEVELOPMENT: THE CASE OF GHANA

Ghana is increasingly conscious of its vulnerability to the impacts of climate change and the significant risk climate change presents to its economy. Floods, droughts and other extreme weather events are becoming more and more frequent realities in the country. This has led to a relatively high level of political awareness with respect to climate change and sustainable development in Ghana, with emphasis being placed on

adaptation and improving climate resilience. It is also increasingly recognised that low-carbon development policies may be mutually supportive with existing national sustainable development objectives.

Ghana joined the Copenhagen Accord in 2010 and submitted a long initial list of 55 NAMA concepts covering a range of sectors. The list is seen as a menu of options for achieving green-growth objectives, and five of its items have since been prioritised by the government. It is anticipated that two out of these five priority projects will be developed into full bankable NAMA proposals under the LECB Programme.

Responsibility for the development and implementation of NAMA activities was delegated by the Ministry of Environment, Science, Technology and Innovation (MESTI) to the Environmental Protection Agency (EPA). The EPA had the earlier responsibility of preparing the GHG emission inventory. NAMA development under the LECB Programme in Ghana focuses on aligning a low-carbon strategy with the government's national and sectorial development priorities and strategies. There is a particular focus on the energy sector and on engaging the private sector.

One of the main energy development priorities in Ghana is to increase the percentage of renewable energy to 10% by 2016. In order to do this, the country aims to develop solar energy. Improved energy access for the population is also a goal. To facilitate the meeting of these goals, Parliament adopted the Renewable Energy Act in December 2011 (Parliament of the Republic of Ghana, 2011). This Act includes the introduction of feed-in-tariffs, a renewable energy fund that would provide special incentives and seed capital for start-ups, the introduction of Power Purchase Agreements, and the establishment of a Renewable Energy Agency.

The LECB Programme is exploring the possibility of scaling up renewable energy support schemes established by the Act through cooperation with the Ministries of Energy and Finance. This will be done through a NAMA project focused on sectorial priorities, with a strong emphasis on stakeholder engagement. As part of the development of this idea, a technical working group was created involving key ministries. After the project launch, stakeholder consultations with individuals from the private sector and NGOs were carried out. The Ministry of Environment and the Ministry of Energy co-chair this project facilitating close cooperation and continued engagement at the sectorial level.

A close relationship has also grown between the climate change-team at the EPA and the Ministry of Finance. Given the high vulnerability of its economy to climate change and other environmental issues and its dependence on natural resources, Ghana has created a special unit within the Ministry of Finance that focuses on the environment and natural resources. Through this unit, several staff members have been designated to work specifically on climate change. The unit is funded by the government and focuses on key sectors, including agriculture (in which approximately 60% of the population is employed), food security, water, energy and other related issues. The task of the unit is to consider policy interventions for enhancing economic growth and making it sustainable. The idea behind its establishment is to link climate-change issues to the development process and to promote the greening of policy interventions within the sectors.

While Ghana has made significant advances, particularly in securing political commitment and setting up sectorial cooperation, it still faces challenges relative to the country's overall economic context and the level of technical capacity required for scaled-up investment in low-emission technology. In general, Ghana is having difficulty making a strong political case for renewable energy investment, given that new natural gas reserves have been discovered recently within the country. Capitalising on this newly discovered potential would require a gas infrastructure. This creates competition for energy investment between the heavily-subsidised gas industry and renewable energy. Another important challenge is that of the need to improve the reliability of the nation's supply of power. Often, electricity fails to be supplied to paying residential and business consumers. The issue of the

cost of power, then, takes second place to that of the sustainability of the power supply, especially for business continuity. Many businesses are willing to pay higher energy prices, if doing so would mean energy security.

Other sectors, in which competing economic and social interests come into conflict with low-carbon policies, face similar challenges. In one city for example, a bus rapid transit (BRT) system is being opposed by taxi unions, despite assurances by the government that it will secure jobs and alternative employment opportunities for affected drivers. The lack of trust between the government and the private sector in such cases is clearly an important issue.

Ghanaian advances are also hampered by a negative experience with the CDM in the private sector, which resulted in lowered expectations and a loss of trust. Also, current technical capacities needed in the public and private sectors for developing NAMA projects are generally low.

To address these barriers, a business case for supporting renewable energy is being made that emphasises co-benefits, such as energy access, health benefits and new employment. There are also efforts at building capacities in the private sector, focusing especially on potential investors and developers. For example, led by the Ghana Investment Promotion Centre, the government developed an investor guide on NAMAs which targets private-sector capacity building. This investor guide aims to fill the knowledge gap through a sector-by-sector treatment of mitigation options and by providing information on risk management, licensing and necessary documentation. Information is also provided on feed-in-tariffs and incentives available to the private sector, which many companies may not be aware of.

Other barriers include the lack of financing to cover the up-front costs of developing NAMAs and the lack of prior experiences that have been successful beyond the concept stage, which might serve as good examples to follow.

Given that available international resources are limited and that currently there is a tendency towards austerity, Ghana places great emphasis on finding creative ways to raise domestic public and private financing. There is a need to engage authorities beyond providing them with general knowledge about the climate-change issue. They need concrete evidence on how to implement activities and how to raise and administrate the funds required. There is currently a lot of interest in the Climate Public Expenditure and Institutional Review (CPEIR) methodology as a potential platform for doing this (Bird, Neil, et al. 2012).

The climate-change team is considering the possibility of implementing climate-sensitive budgeting that would build on a public expenditure and institutional review. The objective is that governmental policy interventions will be built into the government budgetary system, so that budget allocations to the climate-change agenda might be increased. One concept under consideration is that of using a certain percentage of revenue expected from natural gas production for climate-change purposes. The government is also considering setting up a climate-change fund.

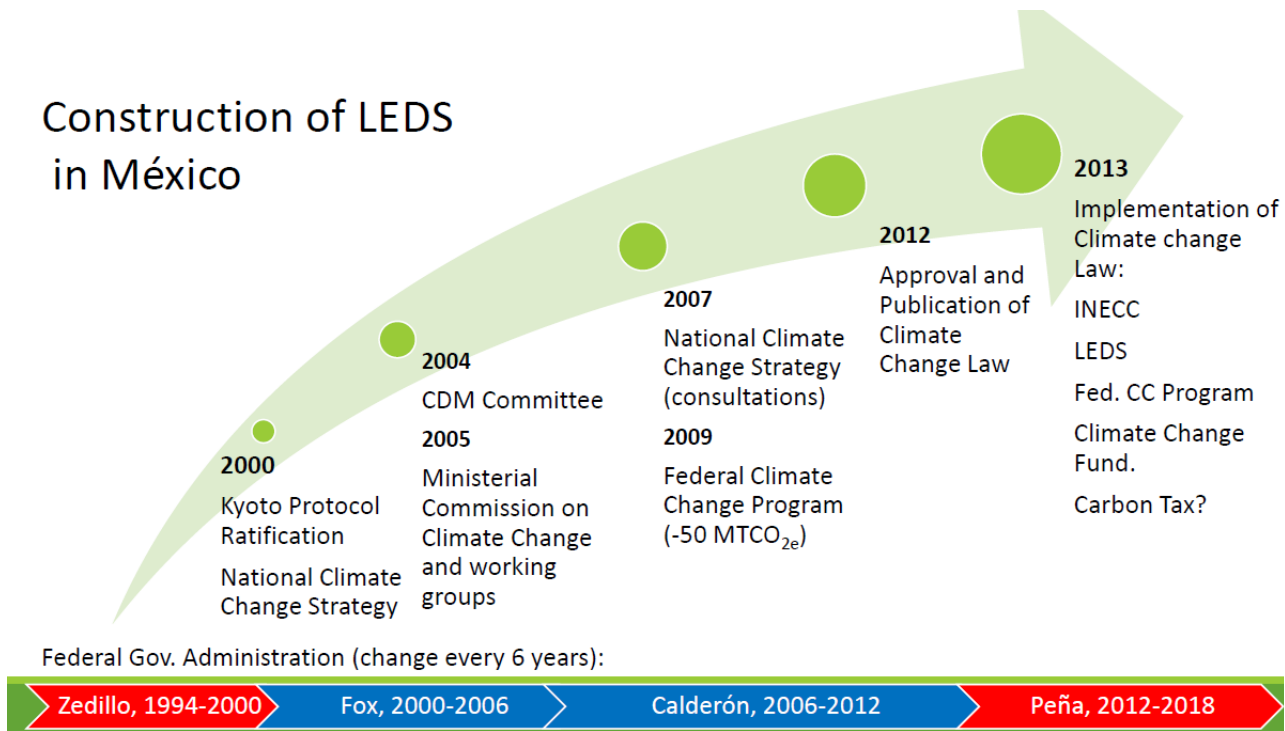
The climate-change team at the EPA is also attempting to build on other relevant initiatives. For example, good cooperation between them and the budgetary division of the Ministry of Finance has allowed for the integration of measures to include the climate-change issue in a project dealing with the decentralisation of the fiscal system, run by the budgetary division. This project, supported by JICA and KfW, has created a platform for improving the fiscal management system at the sub-national level by establishing performance targets (fiscal, institutional, etc.) for participating districts. A climate-change-related indicator has been introduced into this platform. If a district or local authority is able to achieve this indicator, a release of special financing from KfW is triggered. This project was initiated by the climate-change unit of the Ministry of Finance as an add-on to the budgetary division's decentralisation programme. By building on an existing initiative in this way, a significant amount of money and time have been saved.

Going forward, the main challenge for Ghana is to continue building capacities, acquiring practical experience and acquiring further institutional support for climate-change activities.

MOBILISING KEY STAKEHOLDERS: THE CASE OF MEXICO

Over the past decade, national climate policy in Mexico has undergone a remarkable transformation. The country made the transition from one in which there was strong opposition to climate action at the political level to becoming an international leader on the issue, especially among emerging economies. Figure 11 shows the critical steps along this journey.

FIGURE 11: CRITICAL STEPS IN MEXICO'S CLIMATE-CHANGE POLICY



Source: Cervantes, 2013

The foundation of the national climate policy in Mexico was laid when a presidential order mandated the establishment of the Inter-Secretarial Commission on Climate Change in 2005 (Globe International, 2013). The Commission played a critical role in developing the National Strategy on Climate Change and in getting it adopted in 2007. In 2009, the Special Climate Change Programme (Spanish acronym PECC) for 2009-2012 was launched. The Programme develops the elements of the Strategy, creates a long-term vision and provides a series of mitigation, adaptation and cross-cutting measures, which are organised into 106 objectives and over 300 sub-objectives (Clapp et al., 2010).

The Programme states that climate change does indeed present a threat, but it is also an opportunity for Mexico to promote sustainable development. It adds that mitigation and adaptation activities will also benefit national energy security, improve the efficiency and competitiveness of industry and mean better air quality, as well as having other positive impacts. It goes on to say that such activities would make sense even in the absence of climate-change concerns (Federal Government of Mexico, 2009). The overall climate objective is to reduce GHG emissions by 50% compared to their 2000 level by 2050.

The strategy and subsequent policy outcomes were supported by the strong technical data and GHG emission inventory expertise that has been generated in Mexico. The country has submitted five NCs (in 1997, 2001, 2006, 2009 and 2012) and developed long-term mitigation scenarios by capitalising on earlier initiatives, such as the Project Catalyst study, “The Economics of Climate Change” study and the Clean Technology Fund (CTF) Investment Plan (Clapp et al., 2010).

Strategic objectives set out in the Programme were further legitimised and made operational through the Climate Change Law, developed over several years and adopted in June, 2012. Mexico is now entering the challenging stage of beginning to apply the law and creating institutions and the legal framework necessary for continuity and reinforcement of actions. The government is creating the key infrastructure, such as a GHG emission registry, a MRV system, a national climate-change fund and a number of other mechanisms. It is also developing several NAMA proposals, one of which is considered among the most advanced proposals internationally (NAMA for Sustainable New Housing).

Despite significant progress on climate change in the domestic policy-making arena, Mexico still faces a number of barriers in its transition to low-emission development. In terms of government, the primary barriers are tight budgets and the perceived inability to attract financing for LEDS and NAMAs. Some local experts have expressed doubts that Mexico will be able to receive significant international funding for its NAMA proposals. This fear is exacerbated by the lack of clear guidance on what the proposals should include. However, the approval of funding for the Mexican Sustainable Housing NAMA by the NAMA Facility in the fall of 2013 has been a step forward in the understanding that international funding is increasingly available.

To ensure the strong engagement of relevant ministries in NAMA and LEDS development, the government has decided to create clear incentives for their participation. This is done through the allocation of new funding for climate change from the central budget, which allows other ministries to hire more people and devote more attention to the issue.

The LECB Programme is contributing to the national LEDS process in several ways, including developing sectorial GHG management systems, identifying and developing NAMAs and the MRV system and establishing a platform to promote public-private cooperation.

Another critical barrier identified in the interviews for this study is that of limited technical capacity in the private sector. Although the private sector has gained some experience through the CDM, there is still little awareness of the potential opportunities of NAMAs. Similar to the doubt mentioned above in the public sector, many players in the private sector as well don’t believe that any significant funding will come to NAMAs and, as is also true in other countries, they have a certain mistrust of government-led initiatives.

Sector-specific technological and economic barriers also exist. To give one example, in the mining sector, certain actions are made extremely difficult due to opposition from the unions, where any discussion on climate policy is often associated with the risk of regulation.

The climate-change law is expected to result in significant improvement in private-sector capacity building, since companies will have to report on their emissions using the GHG Protocol, as well as to develop mitigation strategies. The issue, however, is whether capacities will increase fast enough to enable a truly sustainable transition to a low-carbon economy. In light of this, efforts are being made to increase the participation of local universities and national consultants in order to lessen the heavy reliance on international ones.

Engaging the private sector so far has not been easy. The private sector was not included in the development of the national strategy, and this has created difficulties and some opposition. Now the government, through the LECB Programme, is keen to engage the private sector through trials of voluntary bottom-up initiatives for developing NAMAs.

The LECB Programme aims at addressing some of these barriers by building climate-change capacities in the mining and chemical industries, specifically. These were selected due to their importance for reducing GHG emissions and limited engagement in LEDS and NAMA processes in Mexico. Initially, ten industries were selected, from which, in a pre-selection process, companies were chosen based on their interest and level of GHG emissions. This reduced the field to the two industries of mining and chemical products, the chambers of which were contacted.

Currently, engagement with the private sector takes place through business associations. To encourage innovative NAMA development, champions are needed in the chemical and mining industries, and the search for these continues. It is not yet clear whether the companies will accept the proposed approach or whether the incentives the government offers will be considered attractive enough. Financing schemes are needed that are in place and ready to finance companies that take action. Also needed are some examples of NAMAs that are workable enough to advance to the implementation phase.

Summary: Tackling the Barriers to the Development of LEDS and NAMAs

This study shows that, while all participating countries face serious barriers on their journey to low-emission development, a number of practical solutions have been adopted to overcome them. The main barriers that must be targeted are those of raising technical and human capacities, strengthening political commitment and coordination among the ministries, engaging stakeholders and securing financing for the development and implementation of LEDS and NAMAs.

According to the interviews and survey conducted through the LECB Programme, a number of countries have made considerable progress in obtaining political commitment by linking LEDS and NAMAs to sectorial development goals and plans. In a number of countries, the process itself of designing national climate-change strategies has proven particularly effective for mobilising stakeholders. In particular, experts from Vietnam, Ghana, Moldova, Ecuador, Kenya and Mexico noted progress in this area. For example, adoption of a Climate Change Law and a National Strategy has put climate change on the agendas of practically all levels of government and society in Mexico.

Furthermore, mainstreaming climate change into national plans has helped improve political buy-in and coordination. Emphasis on co-benefits of LEDS and NAMAs at the national, sectorial and local levels are proving critical in getting support. Strengthened national capacities at the institutional and individual level and building domestic constituencies of stakeholders among the ministries, private sector, NGOs and academia has allowed several countries to advance more rapidly.

While some countries have made progress in mobilising international and domestic funding, financing remains a critical barrier to scaling up activities. Prior experience with CDM is having mixed impacts. In most countries it has created initial technical capacity, which is being applied to the development of LEDS and NAMAs. However, particularly in Sub-Saharan Africa, the inability of countries to benefit fully from CDM creates barriers in winning the confidence of the private sector with regards to LEDS and/or NAMAs. In Latin America, this same lack of private-sector confidence arises because investors can't sell off emissions reductions at a good price, due to the decline in the carbon market.

Based on this analysis, the recommended course of action for countries is to begin by building political commitment internally and developing policy proposals. Financing will follow. With regards to financing, engaging the private sector is a critical next step for most of the countries considered.

It is also important for countries to have a focal point in the Ministry of Finance either from the budgetary or policy analysis divisions. Once fully on board, ministries of finance can use their capacity as a resource-generating entity to secure more funding and to align climate policies to fiscal priorities. The example of Ghana is particularly helpful in this respect. The possibility of raising domestic financing for climate-change policies by improving national public expenditure systems has proven to be helpful, and the CPEIR methodology is a good way to initiate this process.

At the outset of LEDS and NAMA design, it is important to evaluate the country's broader political and economic context and identify policies and market conditions that may affect the feasibility and effectiveness of mitigation frameworks and actions under consideration.

Box 5 provides a summary of the LECB Programme study's findings on these and other key strategies that have had success in moving low-emission development agendas forward in various countries.

BOX 5: LESSONS LEARNED FROM LECB EXPERIENCES

Strategies that work:

- Raise awareness of LEDS and NAMAs as development opportunities and increase capacities for understanding these concepts.
- Engage ministries of finance and energy in order to broaden support for mitigation actions.
- Mainstream climate change into national planning through the participation of key stakeholders in LEDS and NAMAs.
- Create incentives for other agencies to participate by tapping into their agendas.
- Use international commitments or pledges effectively in order to ensure credibility and continuity of internal policies.
- Align LEDS and/or NAMAs with national and sectorial development priorities in order to ensure political support and planning coherence.
- Build on opportunities around climate financing.
- The Ministry of Environment (or other agency in charge of climate-change policies) should have a clearly defined role as facilitator, with sectorial agencies taking the lead on LEDS/NAMA development and implementation.
- The creation of technical or thematic working groups and interagency decision committees is effective in promoting cooperation and coordination.
- Create incentives for other ministries and key players by:
 - supporting their current activities;
 - pooling human resources; and
 - focusing on attracting climate financing.
- Prepare national strategies and laws, LEDS or MAPS.
- Use data from earlier efforts and build on relevant existing institutional arrangements and processes.
- Identify and engage champions in the public and private sector to build and maintain momentum for climate change actions and for implementation of pilots.

References

Asia LEDS Partnership: "Case Studies on Low Emission Development: Vietnam's National Green Growth Strategy," February 2013.

Averchenkova, A.: "How-to guide: Low Emission Development Strategies and Nationally Appropriate Mitigation Actions: Eastern Europe and CIS," UNDP, 2010. Available at: http://www.undp.org/content/undp/en/home/librarypage/environment-energy/climate_change/mitigation/how-to_guide_low-emissiondevelopmentstrategiesandnationallyappro/

Accessed 27 February 2014.

Berliner, Johannes, et al.: "Addressing the barriers to climate investment," CDKN, November 2013.

Bird, Neil, et al.: "The Climate Public Expenditure and Institutional Review (CPEIR): Methodological note, A joint UNDP/ODI Working Paper," UNDP/ODI, 2012. Available at: <http://www.snap-undp.org/elibrary/Publications/DG-2013-CPEIR-Methodological-Note.pdf>

Accessed 27 February 2014.

Cervantes, Miguel: "National Experiences in Designing LEDS," Presentation (Day 1, Afternoon) at the LECB Programme Global Meeting, 25-27 September, 2013, Hanoi, Vietnam. Available at: <http://www.lowemissiondevelopment.org/component/content/article/14-events/49-workshops> Accessed, 26 February 2014.

Clapp, C., et al.: "Low-emission development strategies (LEDS): Technical, institution and policy lessons," Organisation for Economic Co-operation and Development (OECD), International Energy Agency (IEA), 2010.

Climate Finance Tracker. Available at: <http://climatefinanceoptions.org/cfo/index.php>

Accessed, 26 February 2014.

Climate Funds Update. Available at: <http://www.climatefundsupdate.org/global-trends>

Accessed 27 February 2014.

Dasgupta, S., et al.: "The Impact of Sea Level Rise on Developing Countries: A Comparative Analysis," World Bank Policy Research Working Paper 4136, 2007.

Ecofys NAMA registry, section for Vietnam. Available at: <http://www.nama-database.org/index.php?title=Vietnam>
Accessed 26 February 2014.

FCCC/CP/2010/7/Add.1, Decision 1/CP.16: "The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention," Available at: <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2>

Accessed, 26 February 2014.

FCCC/CP/2012/8/Add.1: "Report of the Conference of the Parties on Its Eighteenth Session, Held in Doha from 26 November to 8 December 2012," Addendum, Part Two: "Action Taken by the Conference of the Parties at its Eighteenth Session," Available at:

<http://unfccc.int/resource/docs/2012/cop18/eng/08.pdf>

Accessed 26 February 2014.

Federal Government of Mexico: Special Climate Change Programme (Programa Especial de Cambio Climático), 2009-2012. Available (Spanish only) at: <http://web2.semarnat.gob.mx/programas/semarnat/Paginas/PECC.aspx>

Accessed 26 February 2014.

Government of Chile: Chile's pledge to the Copenhagen Accord, 2010, Available (Spanish only) at: http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/chilecphaccord_app2.pdf,

Accessed 26 February 2014.

Government of Chile: Initial National Communication (INC) of Chile to the UNFCCC, Comisión Nacional del Medio Ambiente, 1999. Available at: http://unfccc.int/essential_background/library/items/3599.php?rec=j&preref=2427#beg

Accessed 26 February 2014.

Government of Chile: Second National Communication (SNC) of Chile to the UNFCCC, 2011. Available at: http://unfccc.int/essential_background/library/items/3599.php?rec=j&preref=7592#beg

Accessed 26 February 2014.

Government of Chile, Ministry of Energy, Centre for Renewable Energy: "British-German Fund selects Chile for greenhouse gas project," Available at: <http://cer.gob.cl/en/blog/2013/11/chile-es-seleccionado-por-fondo-britanico-aleman-para-proyecto-de-reduccion-de-gases-de-efecto-invernadero/>

Accessed 26 February 2014.

KPMG International: "Embarking on the low carbon journey: national mitigation actions as green growth vehicles in developing nations," 2011.

KPMG International: "Financing low-carbon investment in developing countries: public-private partnerships for implementation of NAMAs," 2010.

Nguyen Khac Hieu: "Introduction to Several Mitigation Policies in Vietnam," Presentation at the Capacity-building Workshop on LCDs and NAMAs, Hai Phong, Vietnam, 13-15 May 2013. Available at: http://www.mmechanisms.org/document/cop18_sideevent/121126_presentation2_monre1.pdf

Accessed 27 February, 2014.

NOAK-NEFCO Partnership Initiative: "Feasibility Study on Up-Scaling Mitigation Action in Peru and Vietnam," Final Report (approved), 8 August 2011. Available at: http://www.nefco.org/files/NOAK-NEFCO_FS_Final_Report_2011-08-08_FINAL_approved_to_NEFCO.pdf

Accessed 27 February 2014.

Parliament of the Republic of Ghana: Renewable Energy Act, Act 832, December 2011. Available at: [http://energycom.gov.gh/files/RENEWABLE%20ENERGY%20ACT%202011%20\(ACT%20832\).pdf](http://energycom.gov.gh/files/RENEWABLE%20ENERGY%20ACT%202011%20(ACT%20832).pdf)

Accessed 27 February 2014.

Sharma, S., Desgain, D.: "Understanding the Concept of Nationally Appropriate Mitigation Action," UNEP Risø Centre, Denmark, May, 2013. Available at: <http://www.uneprisoe.org/Newsbase/Nyhed?id={A3DA57C9-1C71-49B1-9AF4-F389392D5B52}>

Accessed 27 February 2014.

Socialist Republic of Vietnam: "National Strategy on Climate Change," 2011. Available at: <http://www.chinhphu.vn/portal/page/portal/English/strategies/strategiesdetails?categoryId=30&articleId=10051283> Accessed 27 February 2014.

Socialist Republic of Vietnam: "Technology Needs Assessment for Climate Change Mitigation: Synthesis Report," Vietnam, 2012. Available at: http://unfccc.int/ttclear/sunsetcms/storage/contents/stored-file-20130327170620878/TechnologyNeedsAssessment-Mitigation_Vietnam.pdf Accessed 27 February 2014.

Socialist Republic of Vietnam: "National Green Growth Strategy," 2012. Available at: <http://www.greengrowth-elearning.org/pdf/VietNam-GreenGrowth-Strategy.pdf> Accessed 28 February 2014.

Townshend, T., et al. (Eds.): "Climate Legislation Study: A Review of Climate Change Legislation in 33 Countries," Third Edition, GLOBE International, 2013.

United Nations Development Project (UNDP): "Development Strategies, A UNDP Guidebook," Version 1, UNDP, 2011. Available at: <http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/Climate%20Strategies/UNDP-LECRDS-Guidebook-v17-web.pdf> Accessed 27 February 2014.

UNDP: EXECUTIVE SUMMARY: Preparing Low-Emission Climate-Resilient Development Strategies (Executive Summary)." UNDP, 2011. Available at: <http://mitigationpartnership.net/undp-2011-preparing-low-emission-climate-resilient-development-strategies-executive-summary> Accessed 27 February 2014.

UNDP 2013a: "Guidance for NAMA Design: Building on Country Experiences," UNDP, UNEP, UNFCCC, 2013. Available at: http://www.lowemissiondevelopment.org/docs/resources/Guidance_for_NAMA_Design_2013_.pdf Accessed 27 February 2014.

UNDP, 2013b: "Derisking Renewable Energy Investment: A Framework to Support Policymakers in Selecting Public Instruments to Promote Renewable Energy Investment in Developing Countries," Training Webinar, UNDP 2013. Available at: https://cleanenergysolutions.org/webfm_send/733 Accessed 27 February 2014.

UNEP Risø Centre CDM database: <http://www.cdmpipeline.org/> Accessed 27 February 2014.

UNFCCC NAMA Registry: https://unfccc.int/cooperation_support/nama/items/7476.php Accessed 27 February 2014.

World Business Council for Sustainable Development (WBCSD): "How NAMAs Can Attract Investment for Low-Carbon Growth in Developing Countries," WBCSD Energy and Climate, 2013. Available at: <https://www.kpmg.com/TW/zh/Documents/ccs/namas-final.pdf> Accessed 27 February 2014.



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